The Survey of Business Uncertainty (SBU) is fielded by the Federal Reserve Bank of Atlanta. It was designed, tested and refined in cooperation with Nick Bloom of Stanford University and Steven Davis of the Chicago Booth School of Business and the Hoover Institution. Bloom and Davis received research support from the Sloan Foundation and the U.S. National Science Foundation. Davis also received research support from Chicago Booth.
What we are up to, in a nutshell

Collect ongoing high frequency (monthly) information on firms’ subjective probability distributions over own-firm:

- future sales growth rates
- employment levels
- average unit cost growth
- capital investment expenditures

Create indices reflecting aggregated expectations (first moment) and uncertainty (second moment) responses related to each topic.

Create summary expectations and uncertainty measures based on responses to the four topic areas.

Collect periodic responses to special topics based on salient questions of concern to decisionmakers (public and private).
About the sample
Prospective panel members obtained from a random sample purchased from Dunn and Bradstreet.

**Current sample is about 1500 firms**

Respondents occupy senior finance, managerial, or other leadership roles.

Approximately 42% of potential contacts reached agree to join the panel.

Conditional on joining, 62% responded at least once.

Our average monthly response rate is 37%.
The regional distribution of SBU panelists is reasonably close to the regional distribution of all firms.

Compared the population, the SBU panel tends to have relatively more manufacturing and FIRE businesses, and relatively fewer service-related firms.

This figure shows: (1) the share of unique firms in the Survey of Business Uncertainty by the sector belong to (NAICS 2-digit codes in parentheses). (2) the distribution of all US firms by sector from US Census Statistics on US Businesses. The SBU sample includes all 1067 firms that responded to the SBU at least once between 9/2016 and 7/2018.
The SBU panel has relatively more larger firms than the population

Firm size in the SBU panel is based on employment on the date of the firm’s first response.

Firm size in the Census Statistics on US Businesses is based on employment as of March 12, 2015.

The SBU sample includes all 870 firms that responded to the SBU at least once between 10/2014 and 7/2018 and for which we have information on their employment within 3 months of their first response.
The SBU has relatively more older firms than the population

Firm size in the SBU panel is based 404 firms that responded to the SBU at least once between 10/2014 and answered a special question on age that appeared in the January 2017 survey.
Firm size in the Census Statistics on US Businesses is based on year first employee was hired.
The core survey instrument
Survey is distributed via email and administered via a web-based instrument.

Each firm is assigned to one of two groups (A) or (B), and receives one of two alternating questionnaires each month.

Most months include a special question of current policy interest.

The SE questionnaire collects information on sales and employment.

The CC questionnaire collects information on capex and unit costs.

According to our response analysis, surveys take about 5 minutes to complete on average.
We first ask about the level of sales in the current quarter and the growth rate of sales over the past 12 months.
We ask about scenario-specific values for percent change in sales on the second screen. We use these values in the third screen, which asks for the scenario probabilities.
After the respondent completes the questions about sales, we ask about the level of employment in the current quarter and 12 months ago.
The SE questionnaire: Employment

Looking ahead, 12 months from now, what **NUMBER OF EMPLOYEES** (including part-time) would you assign to each of the following scenarios?

<table>
<thead>
<tr>
<th>Scenario</th>
<th>Likely Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>The LOWEST number of employees would be about:</td>
<td>400</td>
</tr>
<tr>
<td>A LOW number of employees would be about:</td>
<td>450</td>
</tr>
<tr>
<td>A MIDDLE number of employees would be about:</td>
<td>500</td>
</tr>
<tr>
<td>A HIGH number of employees would be about:</td>
<td>550</td>
</tr>
<tr>
<td>The HIGHEST number of employees would be about:</td>
<td>500</td>
</tr>
</tbody>
</table>

Please assign a percentage likelihood to the **NUMBER OF EMPLOYEES** you entered above. (Values should sum to 100%)

- **LOWEST CASE**: The likelihood of employing about **400** people 12 months from now would be: **10 %**
- **LOW CASE**: The likelihood of employing about **450** people 12 months from now would be: **20 %**
- **MEDIUM CASE**: The likelihood of employing about **500** people 12 months from now would be: **40 %**
- **HIGH CASE**: The likelihood of employing about **550** people 12 months from now would be: **20 %**
- **HIGHEST CASE**: The likelihood of employing about **500** people 12 months from now would be: **10 %**

**Total**: **100 %**
The statistics
The first moment index: The employment example

Calculate the subjective expected value for each respondent.

1. The expected growth rate of employment in each scenario \( i \) is calculated using the Davis, Haltiwanger, Schuh formula:

\[
EmpGr_i = \frac{2(FutureEmp_i - CurrentEmp)}{FutureEmp_i + CurrentEmp}
\]

2. The first moment of the respondents subjective probability distribution is:

\[
Mean(EmpGr) = \sum_{i=1}^{5} p_i EmpGR_i
\]
The “topic” first moment index (topics = employment, sales, capex, and unit costs)

For each of the 4 topics, the first moment index is weighted average of the subjective first-moment of each respondent.

Weights in each month are determined by the current employment levels reported by each respondent.

Weights are top-coded at 500 to avoid over-weighting extremely large firms.

Observations are winsorized at the 1st and 99th percentiles.
Reality check 1: Are firms’ subjective expectations predictive of realized outcomes?

Notes: This bin-scatter plot sorts observations into 20 bins according to their expected employment growth over the next 12 months.

The sample includes all firm-month observations in the SBU between 10/2014 and 8/2018 for which we observe expected and realized employment growth.

Population regression: coeff = .706, s.e. = .086, R^2 = .100, N = 2238
The overall first moment index

The overall index in month $t$ is just the arithmetic average of the four topic-specific indexes.

The average unit cost index is negatively correlated with the other three indexes, and so is multiplied by -1 in construction of the average in the overall 1st moment index.

The topic-specific indexes are smoothed (using different moving averages pre- and post- 9/16 to control for the lower sample sizes and change in the sales question).

Each smoothed topic-specific index is normalized to have zero mean and unit standard deviation.
The overall 1st moment index

The (seasonally-adjusted) industrial production index is standardized and smoothed using the same procedure used for the SBU 1st moment index.
What is driving the 1st moment statistics? Some counterfactuals

Counterfactual 1 (“free bins”):
• Fix the probability for each bin as the weighted average across the individual firm responses.
• Construct the individual mean for each firm using their own bin values and the constructed fixed probabilities.

Counterfactual 2 (“free probabilities”):
• Fix the means in each bin as the weighted average across the individual firm responses.
• Construct the individual mean for each firm using their own probability values and the constructed fixed means in each bin.

Counterfactual 3 (“highest-lowest based”):
• Fix the probability for each bin as the weighted average across the individual firm responses.
• Construct hypothetical firm responses using each firm’s own “lowest”, “middle”, and “highest values” and interpolated values for the “low” (2nd) and “high” (4th) bins.
• Construct the individual mean for each firm using the hypothetical bin values and the constructed fixed probabilities.
Counterfactual 1st moment indexes

![Overall 1st Moment Index graph]

**Note:** Overall 1st Moment Index calculated for the sample from 1/2015 and 9/2018.
The overall second moment index in month $t$ is just the arithmetic average of the four topic-specific 2nd moment indexes.

The topic-specific second moment index for individual respondents is just the standard deviation of their subjective probability distribution.

Each topic-specific index is normalized to have zero mean and unit standard deviation.

Topic indexes are averaged, smoothed, and standardized to obtain the overall index.

$$SD(TopicResp) = \sqrt{Var(TopicResp)}$$

where

$$Var(TopicResp) = \sum_{i=1}^{5} ((TopicResp_i - Mean(TopicResp))^2$$
The overall 2nd Moment Index

Notes: The VIX is obtained on the 15th day each month between 1/2015 and 9/2018 (Source: Yahoo! Finance). If the 15th is not a trading day we try the 16th, 14th, 17th, 13th, 18th, or 12th in that order. We smooth the monthly VIX series using the same procedure as for our Second Moment Index and standardize the series to have mean zero and unit standard deviation.
Reality check 2: Does a firm’s subjective uncertainty predict ex post forecast errors?

Firm level regression: coeff = .818, s.e. = .070, R^2 = .136, N = 2238

Notes: This bin-scatter plot sorts observations into 20 bins according to their subjective uncertainty over employment growth in the next 12 months.

The sample includes all firm-month observations in the SBU between 10/2014 and 1/2018 for which we observe expected and realized employment growth.
Counterfactual 2\textsuperscript{nd} Moment indexes

Note: Overall 2\textsuperscript{nd} Moment Index calculated for the sample from 1/2015 and 9/2018.
Special questions
An example:

In July 2018 we fielded a special question designed to elicit the impact tariff hikes were having on firm’s capital expenditure plans. We began the question series by assessing firms’ foreign exposure using specific question sets for goods producers and service providers, respectively.

Service providers
What percent of revenues from your firm's U.S. operations are due to foreign sales?
What percent of inputs used by your firm's U.S. operations are sourced from abroad?

Goods producers
What percent of your firm's production occurs outside the United States?
What percent of your firm's global revenues are due to foreign sales?
What percent of revenue from your firm's U.S. operations are due to foreign sales?
What percent of input supplies for its U.S. operations does your firm source from abroad?
Subsequently, we asked the following question series.

Have recently announced tariff hikes or concerns about retaliation caused your firm to re-assess its capital expenditure plans?

- No
- Yes

If yes
Please check all that apply

My firm is currently reviewing some of its capital expenditure plans.

My firm has postponed certain capital expenditures.

My firm has accelerated certain capital expenditures.

My firm has dropped previous plans for certain capital expenditures.

My firm has added plans for new capital expenditures.
What percentage of your planned expenditures in 2018 and 2019 are under review?

Percentage of my 2018/2019 capital expenditures under review is about \( \boxed{\ \%} \)
### Survey of Business Uncertainty (July 9 – 20)

Have the recently announced tariff hikes or concerns about retaliation caused your firm to re-assess its capital expenditure plans?

<table>
<thead>
<tr>
<th>Firm Type</th>
<th>Number of Responses</th>
<th>Percent Responding</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>330</td>
<td>Yes 19, No 81</td>
</tr>
<tr>
<td>Goods Producers</td>
<td>129</td>
<td>Yes 25, No 75</td>
</tr>
<tr>
<td>Service Providers</td>
<td>201</td>
<td>Yes 14, No 86</td>
</tr>
<tr>
<td>Manufacturers</td>
<td>89</td>
<td>Yes 30, No 70</td>
</tr>
<tr>
<td>Retail &amp; Wholesale Trade, Transportation, Warehousing</td>
<td>53</td>
<td>Yes 28, No 72</td>
</tr>
</tbody>
</table>

Source: Survey of Business Uncertainty conducted by the Federal Reserve Bank of Atlanta, Stanford University, and University of Chicago Booth School of Business.
Exhibit 2: *How Firms are Reassessing their Capital Expenditure Plans*

**Survey of Business Uncertainty (July 9 – 20)**

How have recent tariff hikes or concerns about retaliation caused your firm to re-assess its capital expenditure plans?

<table>
<thead>
<tr>
<th>Share of responses (n=58)</th>
<th>Under review</th>
<th>Postponed</th>
<th>Dropped</th>
<th>Accelerated</th>
<th>Newly Added</th>
</tr>
</thead>
<tbody>
<tr>
<td>59%</td>
<td>20%</td>
<td>8%</td>
<td>12%</td>
<td>2%</td>
<td></td>
</tr>
</tbody>
</table>

Note: 61 respondents said they are re-assessing their capital expenditure plans, and 58 of those answered the question shown in this exhibit. Respondents were allowed to check more than one option, but in practice only 6 respondents did. Of those 6 respondents, 4 of them had totals in excess of 100 percent. Those responses were normalized to 100 percent. Brent – Please remake this table without this normalization and delete the red font passage.

Source: Survey of Business Uncertainty conducted by the Federal Reserve Bank of Atlanta, Stanford University, and University of Chicago Booth School of Business.